

PROJECT REPORT

PROJECT TITLE: University Admit Eligibility Predictor

TEAM ID: PNT2022TMID34617

TEAM MEMBERS:

BERLIN JINO D

ANAND RAJ V

DINESH RAM G S

FLOREN DARIOUS k

1. INTRODUCTION

1.1 Project Overview

In the present conditions, students regularly have difficulty finding a fitting institution to Pursue higher studies based on their profile. There are some advisory administrations And online apps that recommend universities but they ask huge consultancy fees and Online apps are not accurate. So , the aim of this research is to develop a model that Predict the percentage of chances into the university accurately. This model provides Also the analysis of scores versus chance of prediction based on historical data so that Students can understand whether their profile is suitable or not. The proposed model Uses linear regression and random forestalgorithm but cat boost algorithm is giving Highest accuracy.

1.2 Purpose

The primary purpose of the University Admit Eligibility Predictor is to help the student to find the chance to get their desired University and the percentage of getting them inside the University with surity. This give them a fair idea about their admission chances in a particular university. This analysis should help students who are currently preparing or will be preparing to get a better idea.

2.LITERATURE SURVEY

2.1Existing problem

Decision making by applying data mining methods is being used in many service organizations. Educational bodies gradually started to use the business intelligence techniques to identify the current progress in their institutions. Numerous factors which have an impact in academia will be vivid to the educationalists while applying data mining techniques on the academic data. By employing the data mining methodologies, we could identify different patterns which aid institutions to take strategic decisions to improve the students' academic performance. Potential graduate students will have a dilemma on identifying the universities for their post graduate admissions and on the other hand an average graduate student would be uncertain on getting post graduate admission in a reputed university based on their academic scores. In this study, we applied the classification techniques such as Logistic Regression, KNN Classification, Support Vector Classification, Naive Bayes Classification, Decision Tree Classification and Random Forest Classification on the given academic admission dataset.

2.2 References

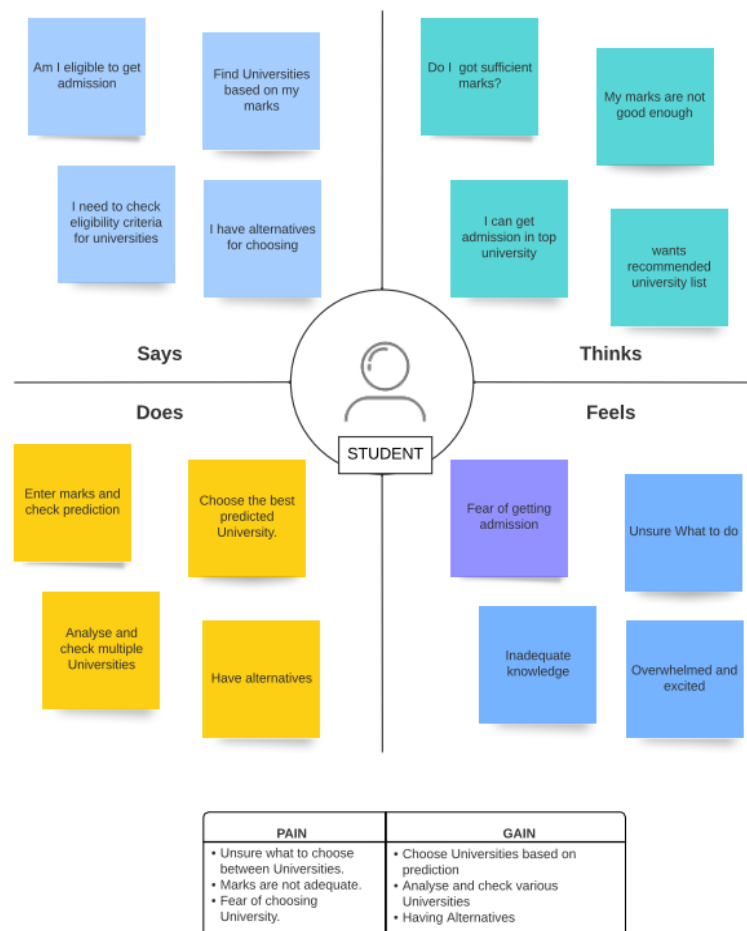
- [1] Selvaprabu Jeganathan, Saravanan Parthasarathy and P. M. Ashok Kumar, "PREDICTING THE POST GRADUATE ADMISSIONS USING CLASSIFICATION TECHNIQUES"
- [2] Akkem Yaganteeswarudu, "MULTI DISEASE PREDICTION MODEL BY USING MACHINE LEARNING AND FLASK API"
- [3] A. Sivasangari, V. Shivani, Y. Bindhu, D. Deepa, R. Vignesh, ": PREDICTION PROBABILITY OF GETTING AN ADMISSION INTO A UNIVERSITY USING ML"
- [4] S. Sridhar, S. Mootha and S. Kolagati, "A UNIVERSITY ADMISSION PREDICTION SYSTEM USING STACKED ENSEMBLE LEARNING"

2.3 Problem Statement Definition

Students are often worried about their chances of admission to University. The aim of this project is to help students in shortlisting universities with their profiles. The predicted output gives them a fair idea about their admission chances in a particular university. This analysis should also help students who are currently preparing or will be preparing to get a better idea.

3. IDEATION & PROPOSED SOLUTION

3.1 Empathy Map Canvas



3.2 Ideation & Brainstorming

Brainstorm & Idea prioritization

Use this template to your own brainstorming and use it to help you understand the importance and feasibility of your ideas.

Use this template to your own brainstorming and use it to help you understand the importance and feasibility of your ideas.

Before you collaborate

Use this template to your own brainstorming and use it to help you understand the importance and feasibility of your ideas.

Define your problem statement

Use this template to your own brainstorming and use it to help you understand the importance and feasibility of your ideas.

Brainstorm

Use this template to your own brainstorming and use it to help you understand the importance and feasibility of your ideas.

Group ideas

Use this template to your own brainstorming and use it to help you understand the importance and feasibility of your ideas.

Prioritize

Use this template to your own brainstorming and use it to help you understand the importance and feasibility of your ideas.

After you collaborate

Use this template to your own brainstorming and use it to help you understand the importance and feasibility of your ideas.

3.3 Proposed Solution

Ideation Phase

Define the Problem Statements

Date	17.09.2022
Team ID	PNT2022TMID34617
Project Name	University Admit Eligibility Predictor
Maximum Marks	2 Marks

Customer Problem Statement Template:

Create a problem statement to understand your customer's point of view. The Customer Problem Statement template helps you focus on what matters to create experiences people will love.

A well-articulated customer problem statement allows you and your team to find the ideal solution for the challenges your customers face. Throughout the process, you'll also be able to empathize with your customers, which helps you better understand how they perceive your product or service.

I am	I'm trying to	But	Because	Which makes me feel
a student	check the eligibility of university	the process is very difficult	there is no appropriate website	confused
but	Describe the problems or barriers that get in the way here			
because	Describe the reason the problems or barriers exist			
which makes me feel	Describe the emotions the result from experiencing the problems or barriers			

Problem Statement (PS)	I am (Customer)	I'm trying to	But	Because	Which makes me feel
PS-1	12 th grade student	get admission details in	There is no updates in	of no real time updates	stressed

		website	seat availability		
PS-2	a UG graduate	Check my eligibility of university for higher studies	There is no proper guidance in website and lot of irrelevant data	of no proper information	Difficult and worried

3.4 Problem fit solution

Define CS, fit into CC	1. CUSTOMER SEGMENT(S) Students who have completed there schooling and wanted to get there favourite eligible universities	6. CUSTOMER CONSTRAINTS Customer may not trust the predictor since it is not 100 percent accurate or reliable.	5. AVAILABLE SOLUTIONS Students need to research more on lot of universities to choose or know about eligible universities in the existing solution.	Explore AS, differential
	2. JOBS-TO-BE-DONE / PROBLEMS Students will be confused on choosing the universities based on their eligibility criteria.this predictor addresses this problem of the student.	9. PROBLEM ROOT CAUSE The root cause for this problem is the availability of fake or not so reliable information over the internet. The eligibility criteria of the Universities is not clearly defined.	7. BEHAVIOUR What does customer do to address the problem and why. The behavioural pattern for the customers to use predictor is to have an clear vision on choosing their dream University in which they are eligible.	
Focus on J&P, tap into BE, understand RC				Focus on J&P, tap into BE, understand RC

<div><div>3. TRIGGERS</div><div>Getting the best prediction on the list of universities will trigger the users.</div></div>	<div><div>10. YOUR SOLUTION</div><div>Design a Admit predictor application which uses random forest,KNN algorithm to predict the list of universities that are eligible to apply for the Student/User</div></div>	<div><div>8. CHANNELS of BEHAVIOUR</div><div>8.1 online: Students might search the universities on internet and get relevant details on eligibility criteria.</div><div>8.2 Offline: Student may visit University campus to get the details of the admission eligibility.</div></div>
<div><div>4. EMOTIONS: BEFORE / AFTER</div><div>Before using the predictor, students will feel insecure,fear and worried.</div><div>After using,gets a clear idea on how to choose the best university.</div></div>		

4. REQUIREMENT ANALYSIS

4.1 Functional requirement

Project Design Phase-II
Solution Requirements (Functional & Non-functional)

Date	03 October 2022
Team ID	PNT2022TMID34617
Project Name	University Admit Eligibility Predictor
Maximum Marks	4 Marks

Functional Requirements:

Following are the functional requirements of the proposed solution.

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	User Registration	Registration through Form Registration through Gmail
FR-2	User Confirmation	Confirmation via Email Confirmation via OTP
FR-3	User Login	Login with username and password Login with Gmail
FR-3	User Details	Submit the documents <ul style="list-style-type: none">• TOEFL Score Sheet• GRE Score• Statement of Purpose (SOP)• Resume
FR-4	User Requirements	<ul style="list-style-type: none">• Upload all the relevant documents in the appropriate location in the website• Based on the uploads, the system would scrape necessary information

4.2 Non-Functional requirements

Non-functional Requirements:

Following are the non-functional requirements of the proposed solution.

FR No.	Non-Functional Requirement	Description
NFR-1	Usability	<ul style="list-style-type: none">• Website will be user friendly and not complicated• Do not require high computing skills to access the website
NFR-2	Security	<ul style="list-style-type: none">• Only the authenticated user would be able to utilize the services of the site.• Users with valid email id and password can access the website
NFR-3	Reliability	<ul style="list-style-type: none">• The system would always strive for maximum reliability• The Data entered by the user will be committed to the Database
NFR-4	Performance	<ul style="list-style-type: none">• The website can efficiently handle the traffic by service the request as soon as possible.• High load Traffic can be effectively handled.• Support multitenancy
NFR-5	Availability	<ul style="list-style-type: none">• Minimal data redundancy• Less prone to errors• Accessible from any browser
NFR-6	Scalability	<ul style="list-style-type: none">• Adequate amount of users can access the website at same time.• The admission season is probably when the system will be under the most strain.• Able to manage numerous concurrent users.

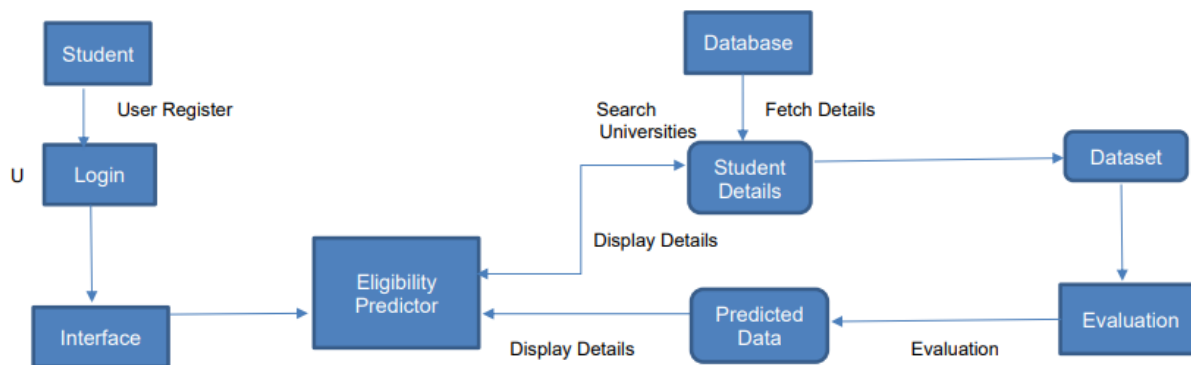
5. PROJECT DESIGN

5.1 Data Flow Diagram

**Project Design Phase-II
Data Flow Diagram & User Stories**

Date	03 October 2022
Team ID	PNT2022TMID34617
Project Name	University Admit Eligibility Predictor
Maximum Marks	4 Marks

Data Flow Diagram:



5.2 Solution & Technical Architecture

Project Design Phase-II Technology Stack (Architecture & Stack)

Date	03 October 2022
Team ID	PNT2022TMID34617
Project Name	University Admit Eligibility Predictor
Maximum Marks	4 Marks

TECHNOLOGY ARCHITECHTURE:

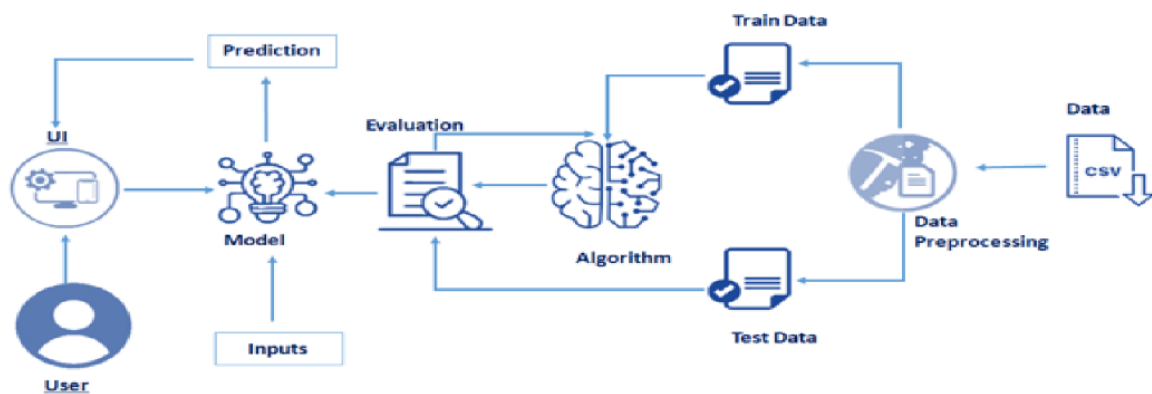


Table-1 : Components & Technologies

S.No	Component	Description	Technology
1.	User Interface	Front end of Application.	HTML, CSS.
2.	Application Logic-1	Collecting Input from the user	Python
3.	Application Logic-2	Integrating machine learning algorithms	Python
4.	Database	To store user data	MySQL
5.	Cloud Database	Database Service on Cloud	IBM DB2.
6.	Machine Learning Model	Predictive modelling to predict the outcomes based on certain patterns.	Predictive model.
7.	Infrastructure (Server / Cloud)	Application Deployment on Local System Using Flask Web Framework	Flask web framework

Table-2: Application Characteristics

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Flask web framework	Framework which is available in Python
2.	Security Implementations	REST,HTTP authentication.	Flask security configuration
3.	Scalable Architecture	Flask is a micro framework which will be pretty adequate and good for machine learning web applications.	Flask
4.	Availability	Allows customization and provides distributed environment	Flask
5.	Performance	Uses Jinja ,a powerful templating tool integrated with flask and flask have a support for secure request dispatching.	Flask

5.3 User Stories

User Stories

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
Customer (Mobile user)	Registration	USN-1	As a user, we can register in the application by entering email, password, and confirming password.	we can access my account / dashboard	High	Sprint-1
		USN-2	As a user, we will receive confirmation email once we have registered for the application	we can receive confirmation email & click confirm	High	Sprint-1
		USN-3	As a user, we can register for the application through Social medias	we can register & access the dashboard with Social media Login	Medium	Sprint-1
	Login	USN-4	As a users, we can log into the application by entering email & password	We can access our account	High	Sprint-1
	Dashboard	USN-5	While entering the home page, I can see profile, customer details and logout	Check for the completed profile	High	Sprint-2
Customer (Web user)	Registration	USN-6	As a customer, we can login to the website by entering email & password	we can receive confirmation email & click confirm	High	Sprint-3
	Home page	USN-7	Enter all the marks as specified column To check the availability	we can able to see list of available universities	low	Sprint-4
	Evaluation	USN-8	Based on the accuracy level, the result will be Sorted on ascending order	Make a solid predictions on the Universities	Medium	Sprint-4
	Result	USN-9	As customer, we can choose eligible of my university		High	Sprint-4
Administrator	Authentication	USN-10	As a administrator, I can verify and authenticate users	Retrieve and make use of User details	High	Sprint-2

6. PROJECT PLANNING & SCHEDULING

6.1 Sprint Planning & Estimation

Project Planning Phase

Project Planning Template (Product Backlog, Sprint Planning, Stories, Story points)

Date	18 October 2022
Team ID	PNT2022TMID34617
Project Name	University Admit Eligibility Predictor
Maximum Marks	8 Marks

Product Backlog, Sprint Schedule, and Estimation (4 Marks)

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1	Home	USN-1	As a user, I will be able to view the details of the predictor.	8	Low	Berlin Jino D Anand Raj V
Sprint-1	Data Set	USN-2	Performing Data Analysis, Data Cleaning of dataset and choosing a perfect model for prediction	12	High	Anand Raj V Berlin Jino D Dinesh Ram G S
Sprint-2	Designing User Interface page	USN-3	As a user, we can enter the mark details to predict the eligible universities	15	Medium	Floren Darious K Dinesh Ram G S Anand Raj V
Sprint -3	Implementing ML model	USN-4	The user details will be validated based on the accuracy and efficiency of the ML model	12	High	Berlin Jino D Dinesh Ram G S
Sprint-3	Python With Flask	USN-5	For Backend and server development, integrate ML model with Flask.	13	High	Berlin Jino D Floren Darious K
Sprint-4	Predicted result page	USN-6	As a user, I can get a list of eligible Universities in the result page	15	Low	Berlin Jino D Anand Raj V Dinesh Ram G S Floren Darious K

6.2 Sprint Delivery Schedule

Project Tracker, Velocity & Burndown Chart: (4 Marks)

Sprint	Total Story Points	Duration	Sprint Start Date	Sprint End Date (Planned)	Story Points Completed (as on Planned End Date)	Sprint Release Date (Actual)
Sprint-1	20	6 Days	24 Oct 2022	29 Oct 2022	20	29 Oct 2022
Sprint-2	15	6 Days	31 Oct 2022	05 Nov 2022	15	05 Nov 2022
Sprint-3	25	6 Days	07 Nov 2022	12 Nov 2022	25	12 Nov 2022
Sprint-4	20	6 Days	14 Nov 2022	19 Nov 2022	10	19 Nov 2022

VELOCITY:

$$AV = \text{Sprint Duration} / \text{Velocity}$$

$$AV = 75 / 24 = 3.12$$

7. CODING & SOLUTIONING

7.1 Feature 1

- IBM Watson Platform
- Web UI
- Python Code
- HTML
- CSS
- JS

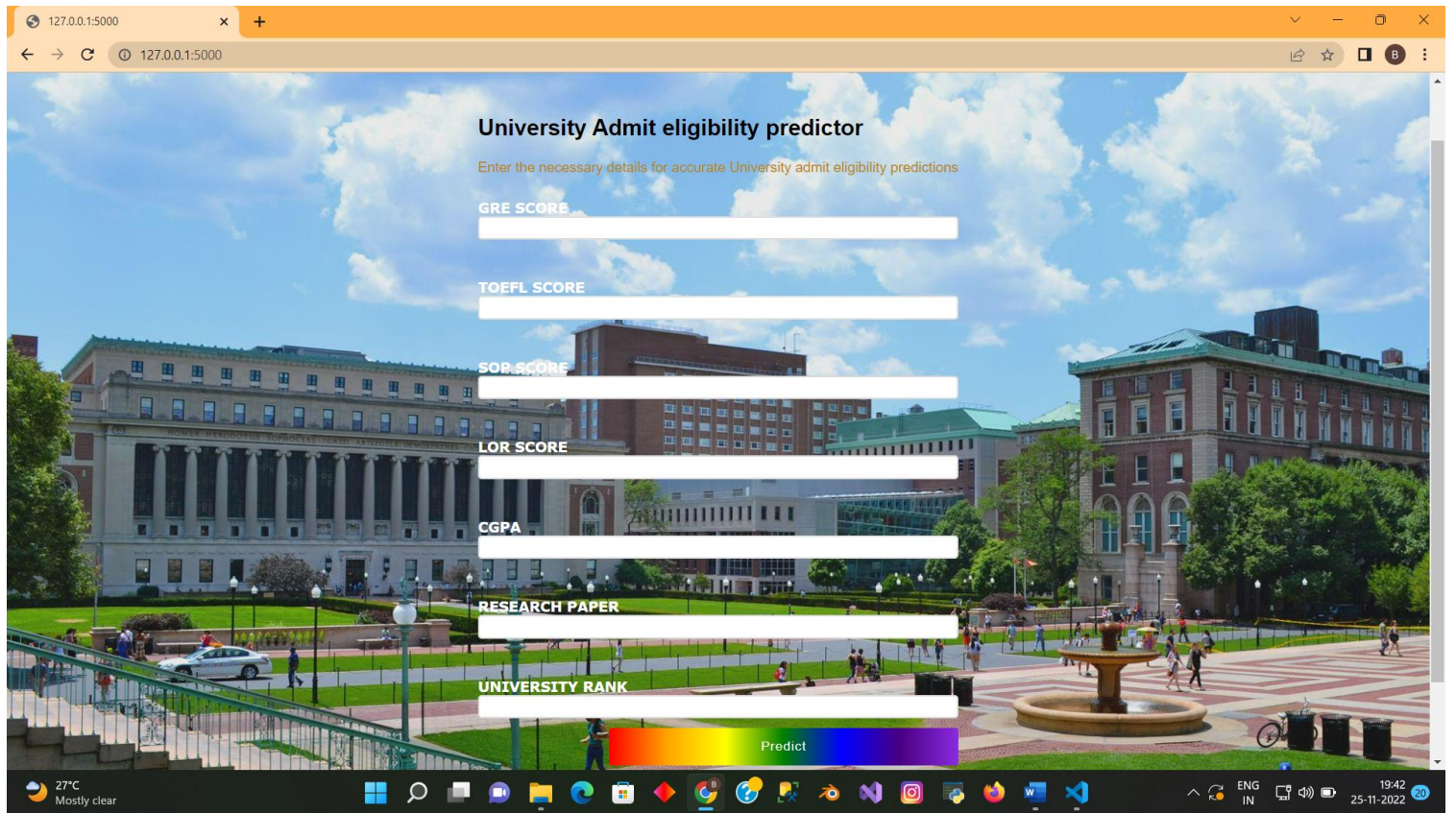
7.2 Feature 2

- Index
- Chance
- Nochance
- Demo2

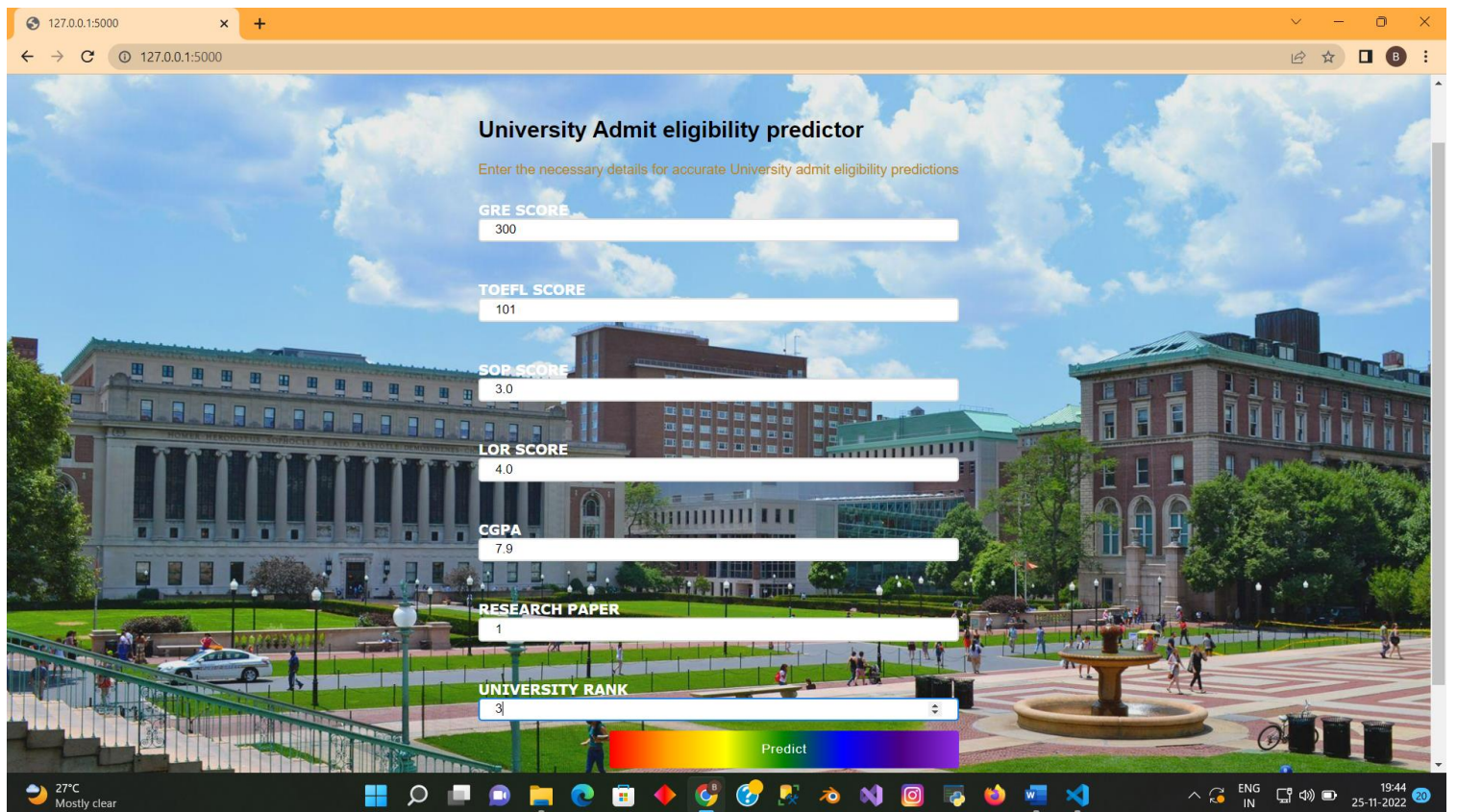
8.TESTING AND RESULTS

8.1 Test Cases

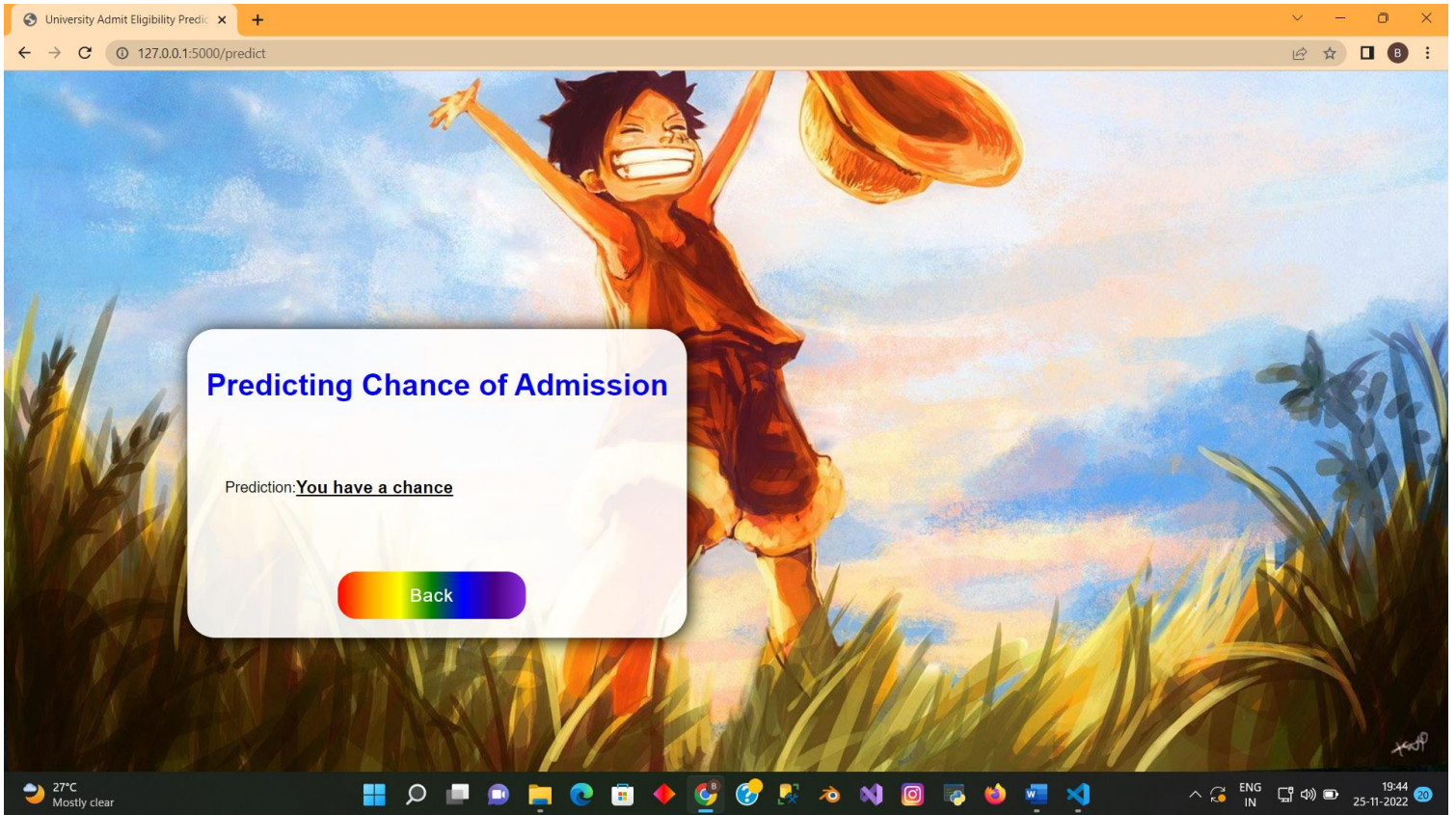
TEST CASE 1



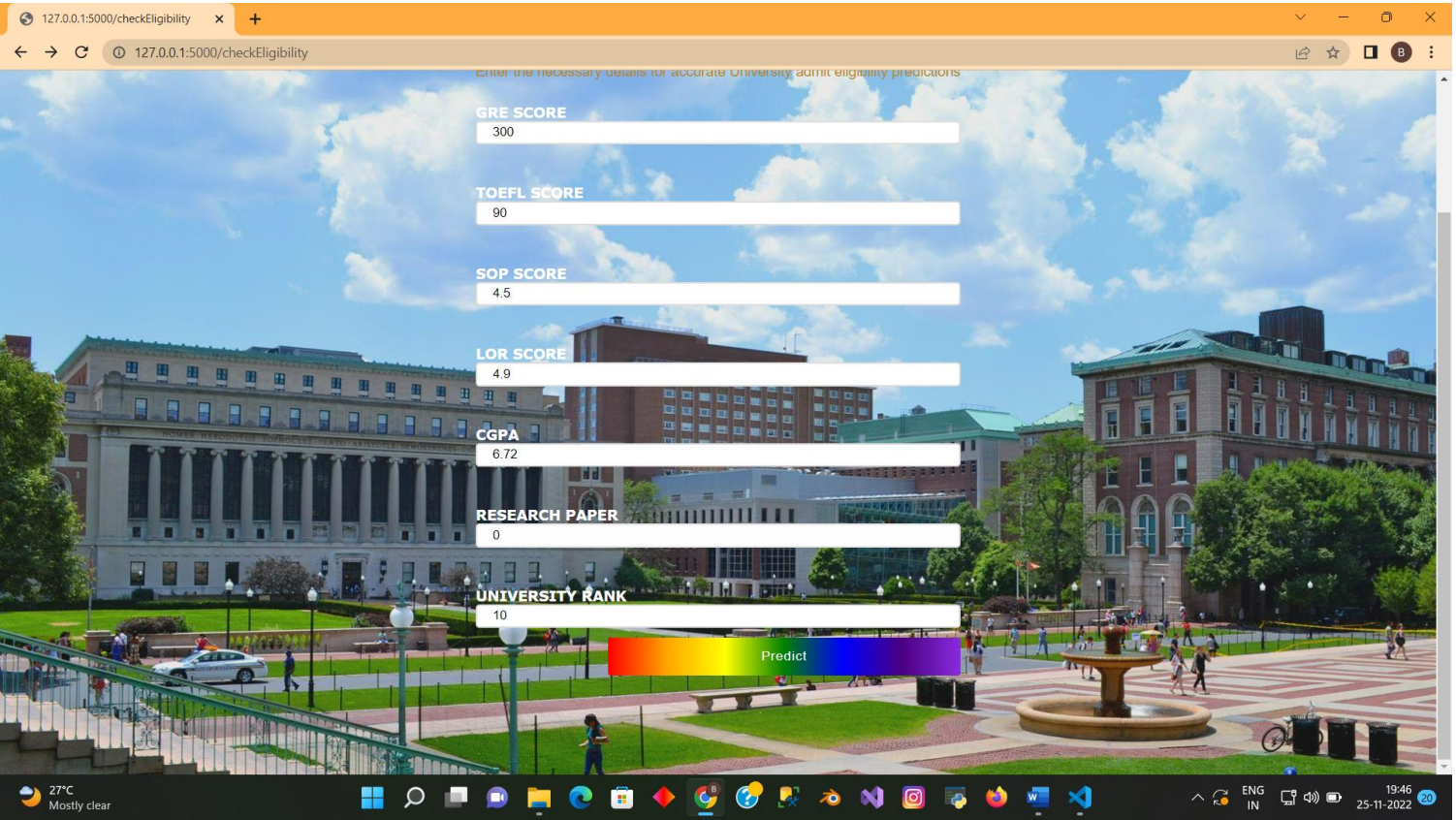
TEST CASE 2



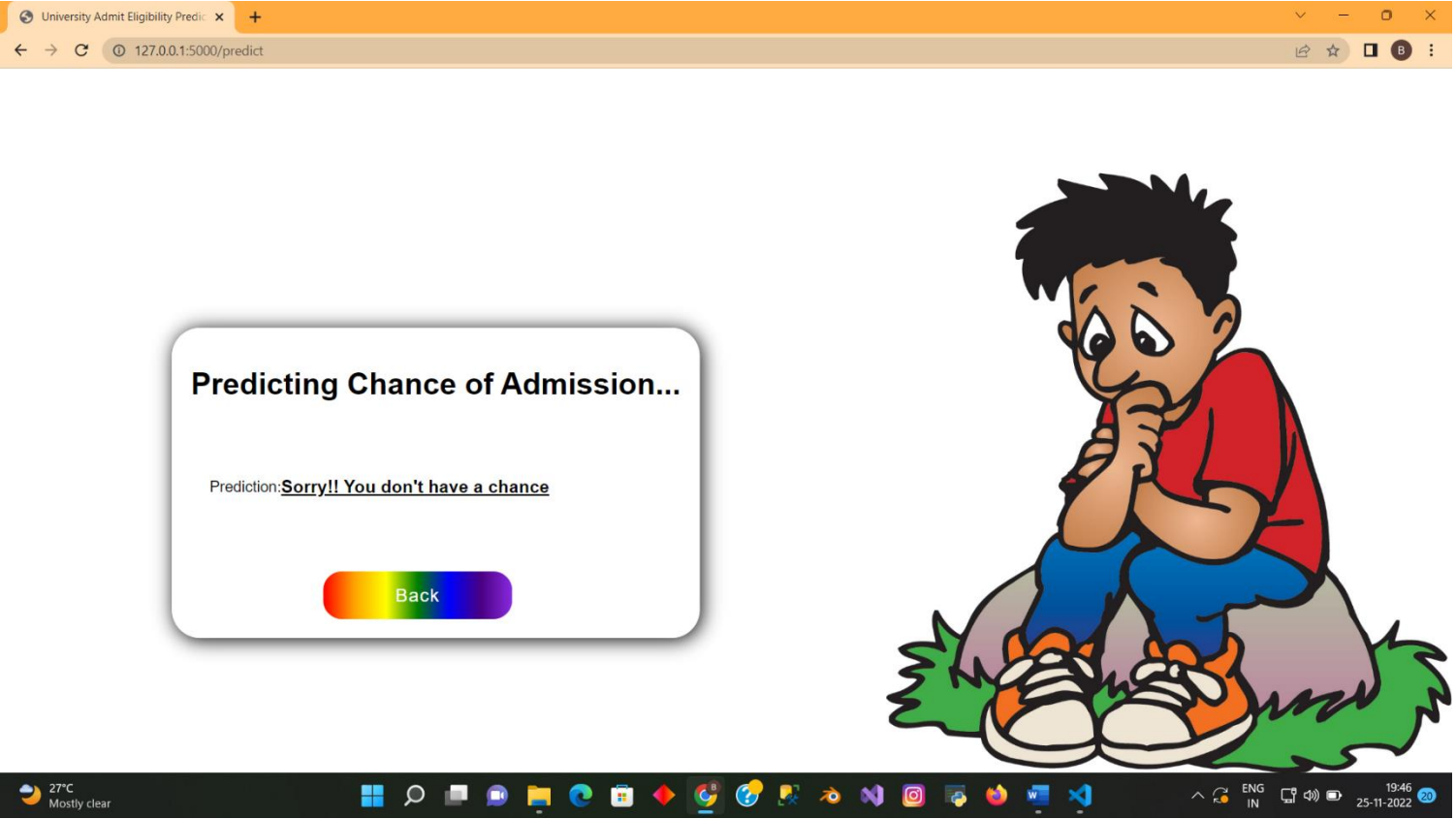
TEST CASE 3



TEST CASE 4



TEST CASE 5



9. ADVANTAGES

- Easy prediction of University based on the scores secured.
- It helps student for making decision for choosing the right college
- It avoids data redundancy and inconsistency

10. DISADVANTAGES

- Only few selected university are available for the prediction.
- A system will provide inaccurate result if data entered incorrectly.

11. CONCLUSION

In University Admit Eligibility Predictor students can register with their Personal as well as marks details for predicting the admission in the colleges and Correct results even if the data has been entered wrong.

12. FUTURE SCOPE

The future Scope of this project is very high. The app can ensemble multiple machine Learning algorithms to improve the accuracy of the prediction. This app can authenticate users and provide relevant access control to students and Add Universities to the UI so that students can select their preferred Universities.

13. APPENDIX

13.1 Source Code

```
from flask import Flask,render_template,request
import requests

API_KEY = "eJtq0iryC5KHdx18bvueo_ggjM6g0QG1FGqwVAfWvJ5q"
token_response = requests.post('https://iam.cloud.ibm.com/identity/token', data={"apikey":
API_KEY, "grant_type": 'urn:ibm:params:oauth:grant-type:apikey'})
mltoken = token_response.json()["access_token"]
header = {'Content-Type': 'application/json', 'Authorization': 'Bearer ' + mltoken}
```

```

app = Flask(__name__)
@app.route('/')
@app.route('/checkEligibility')
def checkEligibility():
    return render_template('index.html')

@app.route('/predict', methods=['POST'])
def predict():
    greScore = int(request.form['gre'])
    toeflScore = int(request.form['ielts'])
    univRank = int(request.form['university rank'])
    sop = float(request.form['sop'])
    lor = float(request.form['lor'])
    cgpa = float(request.form['cgpa'])
    research = int(request.form['research paper'])
    array_of_input_fields = ['greScore', 'toeflScore', 'univRank', 'sop', 'lor', 'cgpa',
    'research']
    array_of_values_to_be_scored = [greScore, toeflScore, univRank, sop, lor, cgpa,
    research]
    payload_scoring = {"input_data": [{"fields": [array_of_input_fields], "values":
    [array_of_values_to_be_scored]}]}
    response_scoring = requests.post('https://us-
    south.ml.cloud.ibm.com/ml/v4/deployments/f4104242-d8ce-4409-86ee-
    94ceb3f85d0e/predictions?version=2022-11-21', json=payload_scoring,
    headers={'Authorization': 'Bearer ' + mltoken})
    predictions = response_scoring.json()
    prediction = predictions['predictions'][0]['values'][0][0]
    print(prediction)
    if prediction:
        return render_template('chance.html')
    else:
        return render_template('noChance.html')

if __name__ == "__main__":
    app.run()

```

13.2 HTML Code

Index.html

```

<html>
<head>
<link rel="stylesheet" href="{{url_for('static',filename='css/style.css')}}">
</head>
<body class="classy">

```



```

    <form action="/predict" method="post">
<div class="container">
    <div class="left">
        <div class="header">
            <h2 class="animation a1">University Admit eligibility predictor</h2>
            <h4 class="animation a2">Enter the necessary details for accurate University admit eligibility
predictions</h4>
        </div>
        <label>GRE SCORE </label>
        <input type="number" class="form-field" max="340" min="0" name="gre" required><br><br>
        <label>TOEFL SCORE </label>
        <input type="number" class="form-field" max="120" min="0" name="ielts" required><br><br>
        <label>SOP SCORE </label>
        <input type="number" class="form-field" step="any" max="5" min="0" name="sop"
required><br><br>
        <label>LOR SCORE </label>
        <input type="number" class="form-field" step="any" max="5" min="0" name="lor"
required><br><br>
        <label>CGPA </label>
        <input type="number" class="form-field" step="any" max="10" min="0" name="cgpa"
required><br><br>
        <label>RESEARCH PAPER </label>
        <input type="number" class="form-field" min="0" name="research paper" required><br><br>
        <label>UNIVERSITY RANK </label>
        <input type="number" class="form-field" max="50" min="1" name="university rank" required
maxlength='5'>
        <button class="animation a6">Predict</button>
    </div>
</div>
</form>
</body>
</html>

```

Chance.html

```

<DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta http-equiv="X-UA-Compatible" content="IE=edge">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <link rel="stylesheet" href="../static/css/style.css">
    <title>University Admit Eligibility Predictor</title>
</head>
<body class="predict">
    <div class="prediction-box">
        <h1 style="color:blue">Predicting Chance of Admission</h1>
        <div class="prediction">
            <span>Prediction:</span>
            <h3 style="font-weight: 600;">You have a chance</h3>

```

```

        </div>
        <a href="/checkEligibility"><button type="button" class="btns">Back</button></a>
    </div>
</body>
</html>

```

nochance.html

```

<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta http-equiv="X-UA-Compatible" content="IE=edge">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <link rel="stylesheet" href="../static/css/style.css">
    <title>University Admit Eligibility Predictor</title>
</head>
<body class="predict1">
    <div class="prediction-box">
        <h1>Predicting Chance of Admission...</h1>
        <div class="prediction">
            <span>Prediction: </span>
            <h3 style="font-weight: 600;">Sorry!! You don't have a chance</h3>
        </div>
        <a href="/checkEligibility"><button type="button" class="btns">Back</button></a>
    </div>
</body>
</html>

```

13.3 GitHub

<https://github.com/IBM-EPBL/IBM-Project-49391-1660818486>

13.4 Project Demo link

<https://drive.google.com/file/d/1yhwaKbUfMmrqAAgb6Tgx8k1Elf4iJG-x/view?usp=sharing>